PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION.

Improvements in the Construction of Concrete Walls for Buildings.

We, WILLIAM ERNEST CLIFTON, a British subject, of St. Peter's Chambers, JOHN STURTON EWART, a British subject, of 1, Wheeler Gate, and THE CLIFTON-EWART CONSTRUCTION COMPANY LIMITED, British company, of 1, Wilford Street, all in the City of Nottingham, do hereby declare the nature of this invention to be as follows:—

This invention relates to improvements which are more particularly applicable to the construction of concrete walls for buildings, when the walls are of some considerable thickness, and its object is to obviate the necessity for the use of shutterings, and at the same time provide a superior finish to the respective faces of the wall.

According to this invention, the inner and outer face of the walls are formed by previously moulded concrete slabs, which are first fixed and retained in position by means of vertical stanchions, and the space between them is then filled in with concrete, which owing to the shape of the stanchions, keys the whole firmly together so as to form a solid and exceedingly strong structure.

The vertical stanchions are of the section described and shown in the Specification of the prior Patent No. 153,633 and one face of the wall is formed by a series of these stanchions placed at the requisite distance apart, and the space between them filled in with concrete slabs, the ends of which engage in the recesses in the stanchions, as described in the specification cited.

The other face of the wall is of similar construction, the stanchions in this case being placed opposite to those in the other face, and preferably connected thereto by metal cross ties.

The space between the two wall spaces is then filled in with concrete which fills in the recesses in the vertical stanchions behind the slabs, holds the latter up to the outer faces of the said recesses, and at the same time keys the stanchions into the body of the concrete.

A wall of any desired thickness can thus be constructed without shutter rings, it is provided with facings which can be made to represent stone, and is economical to construct.

At the angles of a building, the stanchions are formed with recesses on two adjacent instead of two opposite sides, in order to hold the ends of the inner and outer facing slabs at these points.

When extra thickness and strength is required, the inner and outer facings may each be of the double slab grouted-in construction described and shown in the specification cited, with the space between filled in with concrete. In this case the stanchions are formed on the inner sides with an extension of dovetailed section, which serves to key them firmly into the concrete which is filled in between the facings. These extensions may be formed with holes, and the ends of metal cross ties are secured in these holes.

The main office of the metal cross ties is to support the facings whilst the concrete is filled in between them, as the latter when set effectively, keys said facings together independently of the ties.

Dated this 10th day of December, 1920.

H. C. SHELDON,
63, Long Row, Nottingham,
Agents for the Applicants.

COMPLETE SPECIFICATION.

Improvements in the Construction of Concrete Walls for Buildings.

We, WILLIAM ERNEST CLIFTON, a British subject, of St. Peter's Chambers, JOHN STURTON EWART, a British subject, of 1, Wilford Street, late of 1, Wheeler Gate, and THE CLIFTON-EWART CONSTRUCTION COMPANY LIMITED, British company of 1, Wilford Street, all in the City of Nottingham, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention consists in improvements in or relating to the construction of walls for buildings, mainly of concrete, and is particularly applicable to the construction of walls of considerable thickness. An object of the invention is to obviate the necessity for the use of shuttering during the construction and at the same time to provide a pleasing smooth finish to the wall-faces. The type of wall to which the present invention relates is that wherein vertical concrete stanchions are combined with concrete filling-in slabs which, with the outer surfaces of the stanchions, constitute the wall-faces. In walls of this type the stanchions and slabs are moulded before being erected in position, and one construction of this type of wall is described in prior Patent Specification No. 153,633. In the construction therein described the opposing faces of each pair of stanchions were recessed to receive the edges or ends of the filling-in slabs.

According to the present invention a wall of the type above described, wherein two rows of vertical stanchions are employed with the stanchions in one row spaced away from and preferably opposite those in the other, and concrete filling-in slabs are provided between the stanchions in each row and grouting or concrete fills in all the spaces between the sets of slabs, is characterised by the slabs having their ends so engaging recesses for receiving them in opposite faces of the stanchions that the outer faces of the slabs lie flush with the outer faces of the stanchions in each row.

Preferably other filling-in slabs lie flush with the inner faces of the stanchions in each row.

Other features of the invention comprise keying projections on the stanchions and also tie-rods for tying the stanchions of the two rows, and these and other features of the invention will be more clearly understood from the following description of some preferred embodiments of the invention which will now be described in detail with the aid of the accompanying drawings, in which—

Figure 1 is a horizontal section through a wall according to one construction, and

Figure 2 is a similar section through a modified construction of wall.

Referring first of all to Figure 1, a row of vertical stanchions 1 is erected opposite to, and spaced away from, another row of stanchions 2. Sets of filling-in slabs 3 and 4 are inserted with their ends engaging in recesses in the stanchions as shown, so that they are respectively flush with the outer faces of the stanchions in each row. The recesses in the stanchions, the shaping of the edges or ends of the slabs received therein, and the method of inserting the slabs is preferably similar to that described in the prior patent above referred to. The space 5 between the filling-in slabs is filled with grouting or concrete or any other preferred filling material. Those portions of the stanchions which extend inwardly beyond the inner faces of the filling-in slabs become keyed in the concrete or other filling and are held rigidly in position.

If necessary the stanchions may be additionally supported in position by means of tie-rods which conveniently tie the stanchions of one row to those of the other. For instance, diagonal tie-rods 11 may be provided, as shown, with their ends passing through orifices 12 in the stanchions. Other tie-rods 13 passing straight across between opposed stanchions may also be provided with their ends turned so as to be inserted in the same orifices 12 or similar orifices at a different position in the height of the stanchions. It is not necessary that both sets of tie-rods 11 and 13 be provided although it may be found preferable to employ both sets. Similar tie-rods may be inserted at various heights in the wall and it is preferred that the orifices such as 12 in which the ends of the tie-rods

are received should not fit closely round the ends of the tie-rods but should leave space for the grouting 5 to become embedded in them, thus holding the rods firmly in the stanchions.

In Figure 2 a modified form of wall is shown in which stanchions 1 and 2 are disposed as before but in addition to the sets of filling-in slabs 3 and 4 other sets of slabs 6 and 7 are provided, the inwardly-directed surfaces of which are flush with the inner faces of the stanchions. The spaces between the slabs 3 and 6, the slabs 4 and 7, and the slabs 6 and 7 are all filled in with concrete or grouting.

In order to key the stanchions within the filling-in material between the slabs 6 and 7, extensions 8 are formed to project inwardly from the inner faces of the stanchions, conveniently dove-tailed in section. These extensions may either be in the form of ribs extending throughout the entire height of the stanchions, or they may be in the form of a plurality of smaller projections spaced apart throughout that height. In either form they serve to key the stanchions to the filling-in material. Additionally if preferred, tie-rods 9 may be provided, downturned ends of which are received in orifices 10 in the extensions 8.

Alternatively these tie-rods could have been received within recesses in the stanchions themselves, straight rods entering orifices the axial direction of which would be transverse to the height of the stanchions.

One object of the tie-rods 11 and 13 of Figure 1 or 9 of Figure 2, is to support the stanchions while the filling-in material is inserted between them and until such material has set sufficiently. Another object is of course to assist in strengthening the structure as a whole, as will be well understood.

With the present invention it is possible to built a wall of any desired thickness without the use of shutterings as the filling-in slabs obviate any necessity therefore. Moreover, the finish of the wall-facings can be adapted to any desired requirement and the wall as a whole is economical, quick and easy to erect. At the angles of a building the stanchions are formed with recesses on two adjacent sides instead of on two opposite sides as illustrated, but the construction of such stanchions is clearly shown in the prior patent above referred to.

Although in both Figures 1 and 2 the stanchions in one row have been shown as opposite to the stanchions in another row this is not essential as they may, if desired, be in staggered relationship. In this case, if tie-rods are desired, they could be inserted in any preferred manner and conveniently would be of triangular arrangement, somewhat in the nature of a lattice girder.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A wall of the type described wherein two rows of vertical stanchions are employed with the stanchions in one row spaced away from and preferably opposite those in the other, and concrete filling-in slabs are provided between the stanchions in each row and grouting or concrete fills in all the spaces between the sets of slabs, characterised by the slabs having their ends so engaging recesses for receiving them in opposite faces of the stanchions that the outer faces of the slabs lie flush with the outer faces of the stanchions in each row.

2. A wall of the type described and according to Claim 1, wherein other filling-in slabs lie flush with the inner faces of the stanchions in each row.

3. A wall of the type described and according to Claim 1 or 2, characterised by projections of a key-like cross-section (for example projections 8 of dove-tail cross-section) formed on the stanchions to extend inwardly from their inner faces so as to become embedded and keyed in the grouting.

4. A wall of the type described and according to Claims 1, 2 or 3, characterised by the stanchions in one row being tied each by tie-rods to one or more stanchions in the other row, which tie-rods are received in recesses in the stanchions or in projections (for example in keying projections 8) provided thereon.

5. A wall substantially as described and illustrated in Figure 1 or Figure 2 of the accompanying drawing.

Dated this 28th day of July, 1921.

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Chartered Patent Agents.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1922.

[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 1.

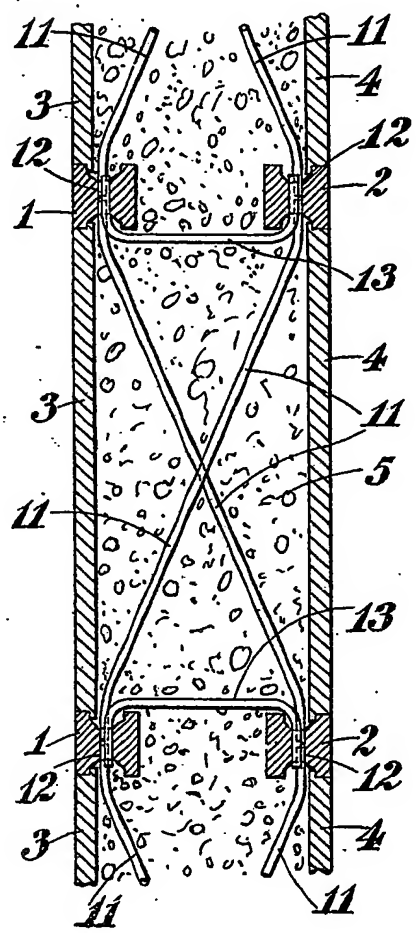
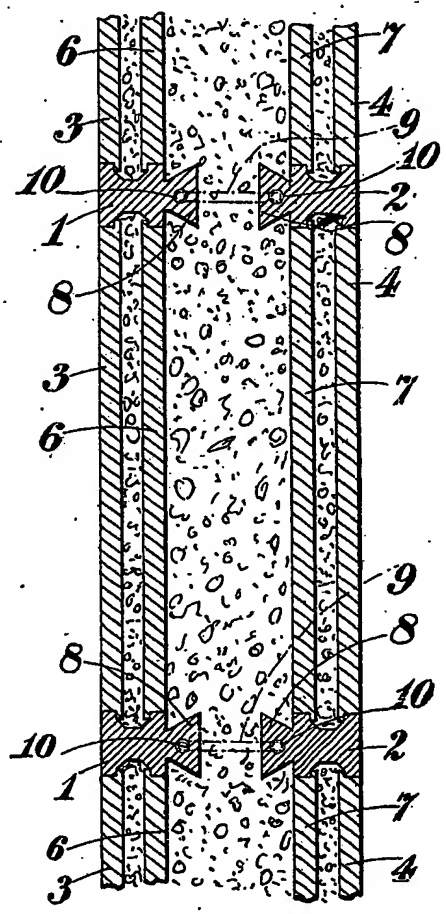


Fig. 2.



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